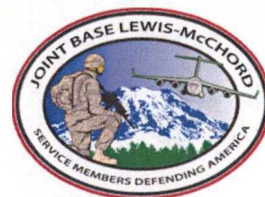
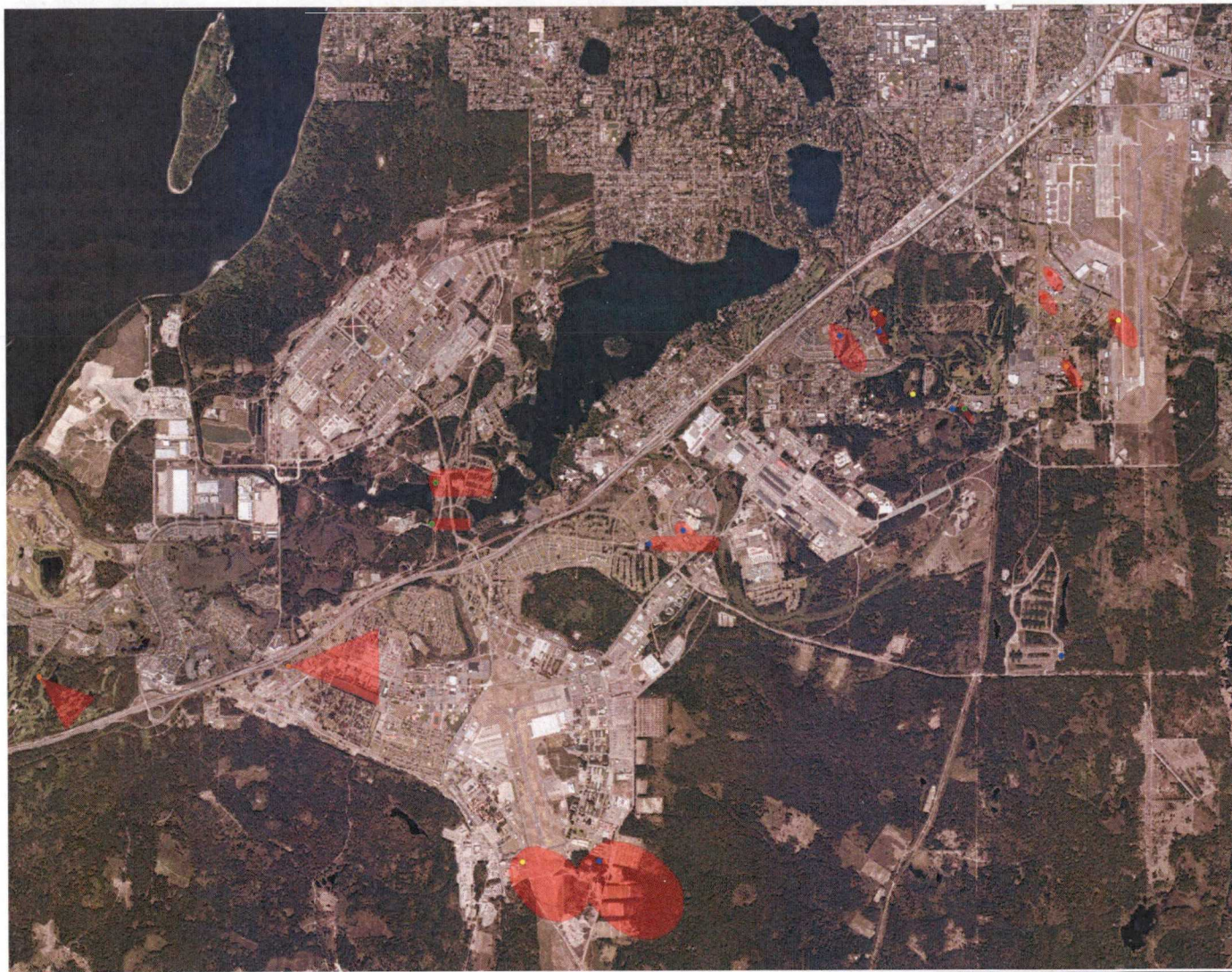




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Greg Burgess AECOM

Cheryl Z Doh
Steve Z Doh

Dr. Chang - Mr Home AFB - Ion Exchange Resin + Electro Oxidation Destruction.

Dora * Fungal Enzyme : 50-70% Destruction.

AECOM

USEPA SF



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Agenda

Introductions
Meeting Objectives
Overall Project Approach
Source Area Identification – Preliminary Assessment
QAPP Question
Proposed Sampling Locations
Next steps
Current Schedule

1.0 Introductions

JBLM

Meseret Ghebreslassie - IR Program Manager DPW Environmental Division IMLM-PWE

Alexander Guerrero

Duane Denfeld

John Gilkinson

Jim Gillie

Cecil Ramsey

Lois Leiding

Cynthia Trout

Becky Kowalski

Lyle Fogg

Jerome Lambiotte

Michael Grenko

Paul Steucke

Army Environmental Command

Dave Mays

Martin Robert

USACE

William Graney - Program Manager for Army & AF EQ and IRP Seattle District USACE

Jason Osborne – Remedial Biologist

Phil Gardener – Risk Toxicologist

U.S. EPA Region X

Chris Cora – Project Manager

Ted Repasky – Hydrogeologist

Washington State Department of Ecology

Chuck Hoffman – Project Manager

AECOM

Anthony Palmieri – Deputy, Project Manager/Geologist

Al Thatcher – Source Identification

Dora Chiang – National Director of Emerging Contaminants

Greg Burgess – Project Manager



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2.0 Meeting Objectives

Meeting is intended to be interactive, please speak up with thoughts, ideas, and questions at any time.

1. Review overall project approach
2. Potential Source Identification – Preliminary Assessment
3. Establish QAPP question
4. Phased sampling strategy
5. Select existing wells for initial groundwater sample collection
6. Review next steps

3.0 Overall Project Approach Review

1. Review existing data – complete
2. Conduct potential PFOS/PFOA source assessment/identification – 85 to 90 % complete
3. Prioritize potential source areas – Establish during TPP #2 – *Focused on High use areas. (FT + Spills/Release)*
4. TPP #2 – Select Phase I well sampling locations
5. Finalize monitoring well list for Phase I sample collection and analysis
 - a. Existing well sampling
 - b. Surface water sampling (optional)
 - c. Influent and effluent sample collection and analysis
 - i. OU 1 LF-2 P&T System
 - ii. OU 1 I-5 P&T System
 - iii. OU 1 Sea Level Aquifer P&T System
 - iv. OU3 ALGT source area wells
6. Project team QAPP review and finalization
7. Monitoring well sampling approach
8. PFAS-free driller water source confirmation
9. Lab analysis
10. TPP #3 – Review tabular summary of results
 - a. Identify supplemental well installation locations
 - b. QAPP amendment
 - i. Tables
 - ii. Maps with new well locations
11. Install supplemental wells
12. Identify monitoring wells for Phase II sample collection and analysis
13. QAPP Addendum to present proposed list to project team
 - a. Tables
 - b. Figures with new well locations
14. Finalize QAPP Addendum
15. Conduct sample collection and analysis
16. TPP #4 – Review tabular summary of results
17. Report all results with project team review prior to finalization



4.0 Source Identification - Preliminary Assessment Research Review

4.1 Primary Objectives

1. Identify operations/activities, both current historic, of potential concern for contributions of PFOS/PFOA
2. Identify potential pathways to the environment
3. Prioritize potential source areas for Site Investigation

Focus on AFFF storage and use (e.g. fire-fighting training areas, crash/accident sites, accidental system releases or spills). Based on experience, other products/activities of interest include:

- Landfills
- Surfactant operations (e.g. vehicle wash, WWTPs, vehicle repair (e.g. engine cleaning detergents)
- Lubricants
- Dry wells (stormwater)

Screening for operations and areas of concern:

- Focus areas centered of obvious higher activity
- Areas with identified concerns based on map review
- Fire training
- Spills
- Dry wells (stormwater)
- Known contaminated sites

4.2 Interviews

4.2.1 Interviewees

Meseret Ghebreslassie - Installation Restoration Program Manager
Becky Kowalski - Stormwater Program Manager
Cindy Trout - Drinking and Wastewater Program Manager (also previously conducted P2 assessments)
Cecil Ramsey Life Safety Systems Manager / Engineer
Lois Leiding - P2 Database EPCRA Program Support / AGEISS
Robert Appling - JBLM Fire & Emergency Services – Assistant Chief of Health & Safety
Ron Glickman - JBLM Fire & Emergency Services – Assistant Chief of Training
Duane Denfeld - Architectural Historian
Jim Gillie - Landfills
Alex Guerrero - Spills Group Supervisor
Mike Grenko – JBLM Public Works Supervisor

4.2.2 Pending Interviews

Forestry Department - are they cognizant of AFFF use (fires), storage, releases from AFFF systems (e.g. filling of vehicle and aircraft reservoirs, washdown),
Alex Guerrero – Fate of biosolids from WWTP
Gray Field Manager – record of aircraft accidents, to assess for potential use of foam



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Fuel Farms Manager – record of fires that used foam to extinguish

4.2.3 Research Summary

Interviews identified that operations apparently using the highest volume of chemicals typically containing PFAS, were fire extinguishing systems that utilized Aqueous Film Forming Foam (AFFF). Systems associated with AFFF storage / use at JBLM included aircraft hangars equipped with fire suppression systems. Each of the aircraft hangars equipped with fire suppression systems typically included one aboveground storage tank (AST) containing AFFF located in a mechanical room with associated pumps and piping. Piping distributes the AFFF to nozzles or deluge outlets mounted at strategic locations on the hangar interior, sometimes floor-mounted, sometimes ceiling mounted, and sometimes on structural members between the floor and ceiling.

Interviews also identified that the most significant discharge of AFFF directly to the environment likely was during firefighting training exercises and during routine adjustment of the foam spray patterns of Airport Rescue Fire Fighting (ARFF) vehicles. The firefighting training exercises occurred in areas located at McChord Field to the east of the runway; and at Gray Field on the northeast portion of the airfield, and approximately 0.25-mile to the southeast of Gray Field. The routine adjustment of the foam spray patterns of ARFF vehicles occurred by spraying foam onto areas including flightline areas on and around the perimeter of runways at McChord, and washing the resultant foam off the runways to adjacent permeable areas. Specific areas utilized included:

- Adjacent to Fire Station 105/Building J00006,
- On the taxiway outside Hangar 1, and
- Across the taxiway to the northwest of Hangar 2 – next to Building J00743.

The adjusting of the spray patterns reportedly occurred nearly daily until the mid-2000s, ceasing in approximately 2010. Personnel indicated during refilling of the ARFF reservoirs, considerable volume of the foam concentrate spills on the vehicles and ground and is washed off the pavement to the nearest drain or permeable area.

In 2015 JBLM replaced all the drums of foam they had on stock, believes with non-PFAS-containing foam. That replacement did not include foam in hangars, or the foam on trucks. Laboratory testing of the foam in ARFFs documented that the foam in all ARFF vehicles contain PFAS foam.

Structural firefighting vehicles have all had the foam replaced with “ColdFire”, a non-PFAS compound.

Fire training Area 032 (FT 032) was excavated in the late 1990s to remove petroleum hydrocarbon impacted soil, and excavated soil was placed in a landfill (Landfill 13) located approximately 0.2 miles to the south. Therefore this landfill area is also a potential source of PFAS. The central area of FT 032 is now gravel. The fuel for fire training changed to liquid petroleum gas in the early 1990s and use of AFFF for practice ceased at FT 032 at that time due to corrosion that occurs to the LPG equipment when contacted by AFFF.



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Interviews also identified other current or historical activities that may contain PFAS containing chemicals at JBLM. Those activities included waterproofing operations (such as for canvas, laundries, vehicle wash racks, and possibly hydraulic fluids at Logistics Center.

Review of archived historical information confirmed locations of other activities frequently associated with PFAS including historic waterproofing operations, laundries, and vehicle wash racks.

Review of query results from the JBLM Pollution Prevention (P2) database identified a number of buildings associated with storage and/or use of AFFF, in addition to the aircraft hangars. Some of these building have been visited and observed a number of containers of FFF stored inside the buildings. Other buildings identified in the database reportedly are not utilized for storage or use of AFFF, and instead appear to have been listed due to an administrative function associated with the AFFF, such as ordering foam for another facility.

Records of aircraft crashes that occurred at McChord field were reviewed, and confirmed that AFFF was applied to the crashed aircraft in some accidents. The accidents to which foam was applied were documented to have occurred as far in the past as the 1950s. Although the foam at that time may not have contained PFAS, foam utilized in the time frame between then and the early 2000s likely has contained PFAS.

JBLM storm and sanitary sewer system configurations were examined with respect to areas that may have been impacted by PFAS. Examination confirmed that the stormwater collection system collects stormwater from many areas including around hangars one through thirteen at McChord field, to which AFFF has been collected after discharge from the hanger's fire suppression systems. At least two of the hangars at McChord, Hangars 5 and 6, are equipped with floor drains designed to capture AFFF and discharge it to a sump located between the two buildings, where it is collected for controlled offsite disposal/treatment.

The JBLM Stormwater Pollution Prevention Plan (SWPPP) was reviewed to identify outfalls to where the surface areas of the base drain. Numerous stormwater outfalls to Clover Creek were identified that discharged stormwater from areas surrounding Hangars equipped with AFFF, and that have a history of releases to surrounding surface areas.

Technical information suggests that the current treatment processes at the wastewater treatment plant (WWTP) can be ineffective on treating PFAS. Biosolids from wastewater treatment plants are at times used for enhancing biological growth of e.g. forests. Initial information from interviews indicates biosolids from the JBLM WWTP have not been applied to JBLM land. Biosolids have more recently disposed of in Landfill 5, which could be a potential source of PFAS. The disposition of biosolids prior to landfill 5 disposal is not known.

Numerous dry wells were identified at JBLM. Although the majority of the dry wells are indicated to be situated near the housing areas, some are located adjacent to some buildings of potential concern such as a fire station, and therefore could be a source of PFAS to groundwater.

Cold Fire - Petroleum based



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AFFF contained in the reservoirs within ARFFs were sampled and analyzed by a laboratory. The analytical results confirmed to contain PFAS in all samples exception of one vehicle. The concentrations of PFOS and PFOAS in the ARFF reservoirs ranges as follow:

- Perfluoro-octanesulfonate: 1,800,000 ppt – 29,000,000 ppt (1,800 – 29,000 ppb)
- Perfluorooctanoic acid: 38,000 ppt – 290,000 ppt (38 – 290 ppb)

The sizes of reservoirs of the ARFFs range from 130 gallons to 500 gallons. The Fire and Emergency Services have engaged a vendor to change out the foam in the ARFFs to PFAS free foams.

Historic aerial photographs of Gray Field were reviewed to assess for additional areas of concern such as FTAs. There are only two FTAs identified at Gray Field, FTLE 17 and SWMU-47.

Limitations:

- No specific information was provided to document the uses of AFFF
- Because of logistics and availability of escort personnel and the government shut down in January, some visual inspections remain to be completed and data to be collected.
- Need information on aircraft accidents at Gray Field that might have included the use of AFFF. This information will be pursued from sources familiar with Gray Field.

4.2.4 Visual Site Inspection (VSI)

A visual site inspection (VSI) was conducted to assess current activities at JBLM. The inspection focused on operations of potential areas of concern located in apparent upgradient locations of PFAS impacted production wells. These production wells were sampled and samples contained PFAS concentrations exceeding USEPA Lifetime Health Advisory (LHA) level. The inspection also assessed the surface features of surrounding areas near production well to evaluate the probability of PFAS coming from different potential sources.

The visits to Hangar 6 identified one pipe on the exterior south wall that was dripping AFFF to the adjacent pavement. A stained broken path was apparent leading across pavement towards two stormwater catch basins on the flightline/taxiway southeast of Hangar 6.

The visits to other hangars identified a number of AFFF ASTs that were dripping AFFF or showed evidence of having released AFFF. These hangars included:

- McChord Hangar 13 – Based on the interview during visit, it was described that the entire 1,500 gallon AST of AFFF had once discharged to the concrete floor of the mechanical room, within which the AFFF AST was contained. A spill database indicated that the volume of a release that occurred in 2017 was 50 gallons, possibly the same event.
- McChord Hangar 10 – AFFF was observed to be bubbling out of a pipe joint flange at the top of the AFFF AST, which was located on the Hangar floor. Staining was observed at intermittent locations headed in the direction of the hangar doors. Work Order was placed by the IRP personnel (WO# 100006855811). DPW O&M Mr. Dave Cline at 253-377-5733 responded immediately. The leak was fixed the next day.



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- McChord Hangar 5 - staining was observed on the concrete floor beneath an AFFF gun nozzle. No evidence suggested that this staining extended towards a floor drain. Work Order was placed by the IRP personnel (WO# 100006860678). DPW O&M Mr. Dave Cline at 253-377-5733 responded immediately. Dave explained that the orange staining that we see coming from the main drain pipes could be mostly microbiologically-influenced corrosion (MIC), not necessarily water mixed with AFFF.
- McChord Hangar 6 – Corrosion and apparent expanding foam patches were observed on the piping associated with an AST in the AFFF mechanical room, apparently indicative that the piping joints that were not welded had been subject to breakthrough of the foam. Apparent thickened AFFF was observed emerging (oozing) from a discharge pipe into a floor drain. Work Order was placed by the IRP personnel (WO# 100006860677). DPW O&M Mr. Dave Cline at 253-377-5733 responded immediately. Dave explained that the orange staining that we see coming from the main drain pipes could be mostly MIC, not necessarily water mixed with AFFF.

Fire Station 105 at McChord airfield (Building J00006) was visited and a wet area was observed at floor level surrounding a post supporting an AFFF AST located in the ARFF garage. The AST was reportedly out-of-use, and was located overhead above a rack of 55-gallon drums and 5-gallon containers containing AFFF. The wet area was beneath two pipes that appeared to have historically dispensed AFFF to ARFF vehicles.

During the visits to hangars, contacts associated with the hangars were interviewed to ascertain whether they had knowledge of releases of AFFF. Photographs of some of the releases were provided for our review, see below for photographs provided. Releases of AFFF were identified at hangars including McChord Hangars 4, 5, 6, 7, 10 and 13.



FFF release from Hangar 4 in 2012.

FFF Release in Hangar 6 at an unknown date.
Releases documented at H6 in May 2005 and Jan 2007.



Hangar 7 (left) and Hangar 13 (right) – Foam concentrate releases to AFFF mechanical rooms in 2010 and 2017 respectively

Based on the dates of the above foam / foam concentrate releases, although it is likely that the foam did not contain PFAS, these are likely similar to releases that have historically occurred in the hangars throughout the JBLM time of operations.

As apparent in photographs above, some of the releases occurred to floor drains that are assumed to be connected to sanitary sewer lines. As-built drawings will be reviewed to confirm this assumption. If the integrity of the sanitary lines have been compromised, there is a potential for the foam to have released to the subsurface environment.

Clover Creek was observed to be unlined, and reported to have gaining reaches (portions of the creek to which groundwater flows into), and losing reaches.

Documentation of volumes of AFFF utilized during operations, or released during spills, were not typically provided. However it appears that the highest volume of use/release of PFAS chemicals was associated with:

- FTAs,
- ARFF vehicles testing of foam spray patterns



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- Hangar releases
- Historical laundry operations

4.2.5 Potential Source Areas based on PA Research and Interviews

Area Name	Site Number/ Area of Concern	General Location/Notes
McChord - Firefighting Training (FT) - Main/ Current Area	FT 032	East side of runway, near Clover Creek
McChord - Historic FT Areas North of FT-032	FT 027 - 031	East side of runway, north of FT 032
McChord - Landfill 013	LF 013	East side of runway, approximately 800 feet south of FT 032
McChord - Firefighting Training Area 033 / Fire Station #105	FT 033	Area of Building J00006
McChord - Clover Creek	Clover Creek	Crosses via culvert beneath middle of runways, and then flows on surface towards northwest extending to west boundary of JBLM, many outfalls to creek that have collected stormwater from McChord airfield.
McChord - Hangars 1 and 2	Hangars 1 and 2 Buildings J00001 and J00002	West of central portion of runways
McChord - Hangars 3 and 4	Hangars 3 and 4 Buildings J00003 and J00004	West of central portion of runways
McChord - Runway perimeters -		Testing of ARFF foam spray pattern
McChord - Ramp across taxiway to northwest of Hangar 2		Testing of ARFF foam spray pattern
McChord Flightline Infield - 4 Aviation Fuel Tanks	4 Aviation Fuel Tanks	East of Hangars 9 and 10
McChord - Hangar 5	Hangar 5 Building 1178	Northwestern portion
McChord - AFFF Sump between Hangars 5 and 6	AFFF Sump between Hangars 5 and 6	Protrudes from underground between Hangars 5 and 6
McChord - AFFF Sump between Hangars 9 and 10	AFFF Sump between Hangars 9 and 10	Located underground between 9 and 10
McChord - Hangar 6	Hangar 6 Building 1160	Northwestern portion
McChord - Hangar 7	Hangar 7 Building 1164	Northwestern portion
McChord - Hangar 9	Hangar 9 Building 1166	Northwestern portion



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Area Name	Site Number/ Area of Concern	General Location/Notes
McChord - Hangar 10	Hangar 10 Building 1167	Northwestern portion
McChord - Hangar 13	Hangar 13 Building 1174	Northwestern portion
McChord – Historic Wash Rack	Historic wash rack	Ramp D, across taxiway to northwest of Hangar 2
Ft. Lewis Logistics Center – Historic Wash Rack	Buildings 9612 & 9626 – Historic Wash Rack	Ft. Lewis Logistics Center North side of Rainier Drive Wash Rack Buildings 9612 & 9626
Ft. Lewis Logistics Center: Historic waterproofing, laundry	Laundry-Building 9060	Ft Lewis - Logistics Center, southwest corner of Building 9060
Gray Field - SWMU #47	SWMU #47 Former Fire Training Area	Ft Lewis – SE of Gray field, west of wash rack
Gray Field - Wash Rack	Equipment 3559 - 3562	South of Gray Field - near SWMU-47
Gray Field – Hangar 3101	Hangar 3101	Northeast Portion of Gray Field
Gray Field - National Guard Hangar	Hangar 3106	Ft Lewis –NE corner of Gray Field
Gray Field - FTLE-17	FTLE-17	Ft Lewis – Within NE portion of Gray Field pavement, approximately 600 feet northwest
Gray Field - Hangar 3146	Hangar 3146	Ft Lewis – Within NE portion of Gray Field, south of larger Hangar 31010 (31010 is very
Gray Field - Army Reserve Hangar	Hangar 3273	Ft Lewis – SE Portion of Gray Field, East of Flight Line
Ft. Lewis - Buildings 04074 & 04076	Buildings 04074 & 04076	Ft Lewis – SW of Traffic Circle - historic waterproofing operations
Ft. Lewis - LF #9 (and #10)	LF #9 (and #10)	I-5 Interchange, Exit 118, south and north of I-5
North Ft. Lewis - Historic Petroleum Refinery for Solvent- Refined Coal Plant (SRCCP?)	Historic petroleum plant	Ft Lewis – South of Sequelitchew Lake, near Production Well 12B
Ft. Lewis – Building 1401 - Formerly known as Building 1402	Building 1401 – Formerly known as Bldg 1402	South of I-5 near Exit 119 - Historic Laundry operation since 1941
Ft. Lewis - Fire Station 1 – Bldg 2014	Fire Station 1 – Bldg 2014	On Pendleton Avenue, between 3 rd and 4 th Streets
Ft. Lewis - Fire Station 102 – Bldg 3081	Fire Station 102 – Bldg 3081	Along west side of Gray Field flightline



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Area Name	Site Number/ Area of Concern	General Location/Notes
Ft. Lewis - LF #5	LF #5	West of North Fort Lewis
1206 / 1210 Ranges?		(Forestry)

4.2.5 Hangars at JBLM With AFFF Systems



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Table of Hangars at JBLM With AFFF Systems

Building #	Facility	Storage Capacity (gallons)	Type	Year Foam Added	AFFF %	Pressurized/Atmospheric	Past Release	Notes
Gray Field								
3146	Hangar	250	Ansulite(AFC-5)	2002	0.06	Pressurized	X	Requires High Expansion Foam
3146	Hangar	250	Ansulite(AFC-5)	2002	0.06	Pressurized	X	
3146	Hangar	250	Ansulite(AFC-5)	2002	0.06	Pressurized	X	
3146	Hangar	250	Ansulite(AFC-5)	2002	0.06	Pressurized	X	
3146	Hangar hose reel	50	Ansulite(AFC-5)	INOP	0.06	Pressurized		
3146	Hangar hose reel	50	Ansulite(AFC-5)	INOP	0.06	Pressurized		
3273	Reserve Hangar	500	Ansulite(AFC5-A)	2003	0.03	Pressurized		Requires High Expansion Foam
McChord Field								
J00001	Hangar 1		see Hangar 2					
J00002	Hangar 2	1,000	Light Water FC-203CF	1998	0.03	Atmospheric		
J00003	Hangar 3		High Expansion Foam			bladder tank pressurized		
J00004	Hangar 4		High Expansion Foam			bladder tank pressurized	XX	
J01178	Hangar 5	1,500	Light Water FC-203CF (foam)	1995	0.03	Pressurized	X	Shared sump with Hangar 6
J01160	Hangar 6	2,100	Chemguard MS C301	2005	0.03	Pressurized	X	Shared sump with Hangar 5
J01164	Hangar 7	600	Chemguard MS C301	2011	0.03	Pressurized	XX	
J01166	Hangar 9	1,200	Chemguard MS C301	2003	0.03	Pressurized	X	
J01167	Hangar 10	450	Chemguard MS C301	NA	0.03	Pressurized	X	
J01174	Hangar 13	1,500	Light Water FC-203CF (foam)	1995	0.03	Atmospheric	X	



5.0 Proposed QAPP Question

If the sum of the 6 UCMR compound concentrations in any groundwater sample from a potential source area is greater than 70 parts per trillion (ppt), then the associated source area requires further evaluation.

If the sum of the 6 UCMR compound concentrations in all groundwater sample from a potential source area is less than or equal to 70 parts per trillion (ppt), then the associated source area does not require further evaluation.

6.0 Proposed Sampling Locations

6.1 Phased Sampling Strategy

Phase 1 – Select and sample wells near priority sources to evaluate if the source impacts the near surface shallow aquifer and the deeper wells that are screened within the perforated zones of select production wells.

Phase 2 – Based on the Phase 1 results, select and sample additional deeper wells to evaluate the potential PFAS migration flow paths in deeper aquifer. Optional Task 6 may be required for broader coverage.

6.2 Proposed Sampling Locations

Number of sampling locations scoped

- 40 groundwater samples wells for Phase 1

- 20 groundwater samples for Phase 2, includes samples from 15 new wells

Optional Task 6 (negotiated but not awarded)

- 15 new well installations

- 35 additional groundwater samples

Based on the source area preliminary assessment, proposed Phase I locations to be sampled are shown in the following table. Forty sampling (40) locations are identified as “Priority 1” locations with an additional 4 shown as “Priority 2.”



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Green Box

Suspected Source Area to Production Well	Well ID	Screened Interval (feet below TOC)	Nearest Production Well
Priority 1 Sample Locations			
Runway	LT-4	16.3 - 26.3	North Well
Runway	LT-7	9 - 19	North Well
McChord Hangars	1168-MW01	7 - 22	North Well
McChord Hangars	CR-01	8 - 38	North Well
McChord Hangars	CW-29b	18 - 23	North Well
McChord Hangars	CW-4	16.9 - 26.9	North Well
McChord Hangars/ Fire Training Areas	Surface Water 1	n/a	North Well
FT032	FTA-4a	16 - 26	East Well
FT032	FTA-4b	68 - 78	East Well
Landfill 013	IH-1a	32.8 - 37.8	East Well
Landfill 013	IH-1b	51.8 - 56.8	East Well
Landfill 013	IH-3b	52.8 - 57.8	East Well
McChord Hangars/ Fire Training Areas	CW-15d	255.4 - 265.4	North Well
McChord Hangars/ Fire Training Areas	CW-15c	98.6 - 108.6	North Well
McChord Hangars	MF-1	4.5 - 19.5	North Well
McChord Hangars/ Fire Training Areas	CW-14a	25 - 35	South Well
McChord Hangars/ Fire Training Areas	CW-14c	159.5 - 169.5	South Well
McChord Hangars/ Fire Training Areas	CW-14d	265 - 275	South Well
Landfill 005	DA-21a	27.6 - 32.6	MARS Hill
Landfill 005	DO-2	40 - 70	Housing Well I
Landfill 005	DO-5b	13 - 18	Housing Well I
Landfill #2	LC-23	20 - 45	MAMC-04/Sage Well II
Landfill #2	LC-174	20 - 25	MAMC-04/Sage Well II
Landfill #2	LC-230	24-44	MAMC-04/Sage Well II
Landfill #2	LF-2 P&T Influent	n/a	MAMC-04
Landfill #2	LF-2 P&T Effluent	n/a	MAMC-04
Landfill #2	I-5 P&T Influent	n/a	MAMC-04
Landfill #2	I-5 P&T Effluent	n/a	MAMC-04
Landfill #2	SLA P&T Influent	n/a	MAMC-04
Landfill #2	SLA P&T Effluent	n/a	MAMC-04
Landfill #1/Gray Field Hangars/SWMU 47	84-CD-LF1-1	20 - 60	Well 14
Landfill #1/Gray Field Hangars/SWMU 48	84-CD-LF1-4	20 - 60	Well 14
Landfill #4	LF4-PNL1	22 - 37	Well 12B
Landfill #4	LF4-01	22 - 28	Well 12B
Landfill #4	LF4-MW-10	22 - 37	Well 12B
Historic waterproofing, laundry	4131-MW04	23 - 33	Well 17
Historic waterproofing, laundry	01035-MW01	15 - 30	Well 17
FT029	CW-12	11 - 21	East Well
Landfill 013/FT032	CW-33c	70 - 80	Prime Beef Replacement Well I
SMWU 47	98-IA-MW-08	38 - 43	Well 20
Priority 2 Sample Locations			
McChord Hangars/ FTs	Surface Water 2	n/a	North Well
McChord Hangars/ FTs	Surface Water 3	n/a	North Well
McChord Hangars	CW-41a	80 - 90	North Well
Landfill #5	93-MFS-C5-2	17 - 27	Well 12B

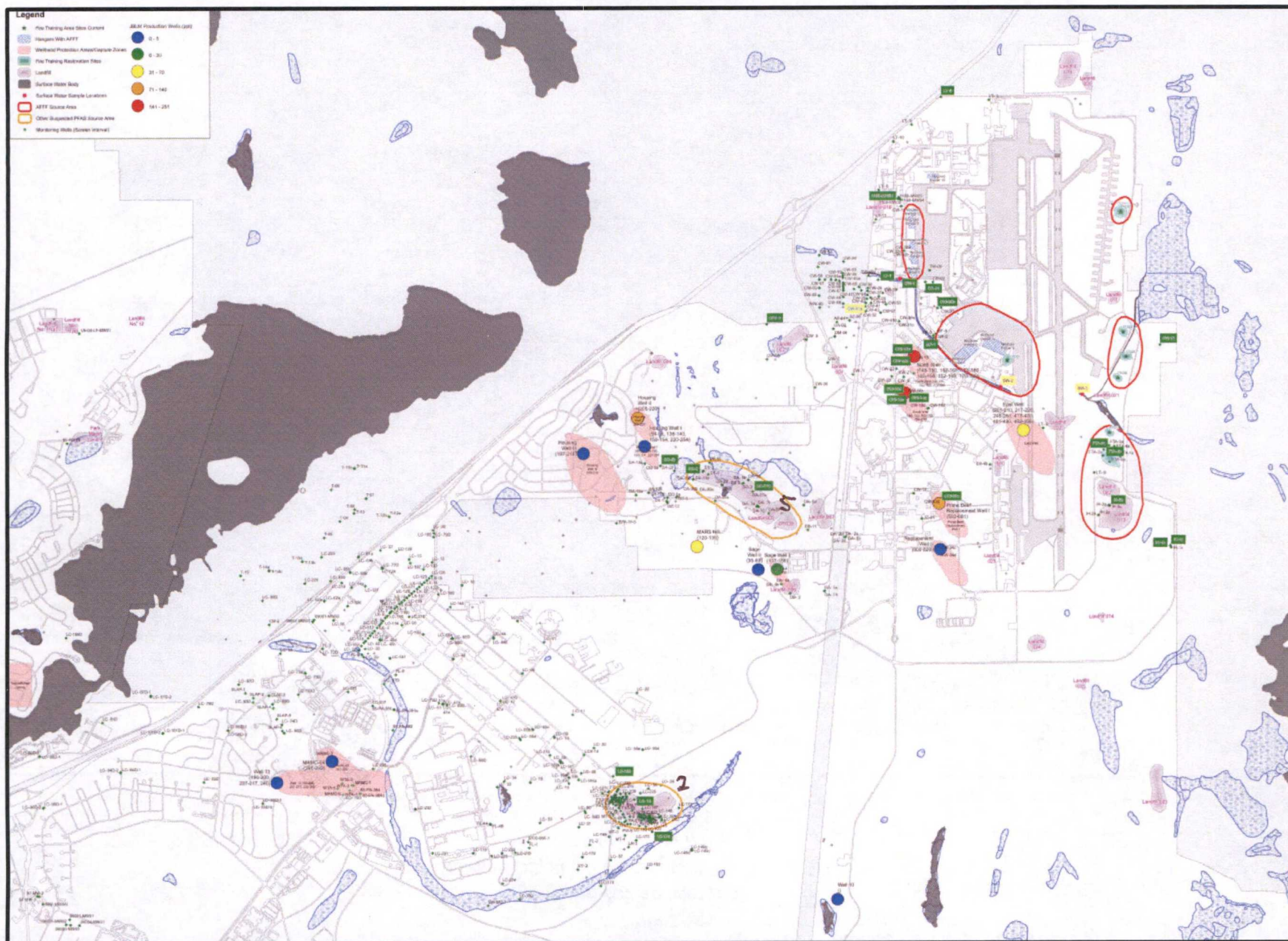
Yellow Box

Proposed sampling locations are shown on the following figures.





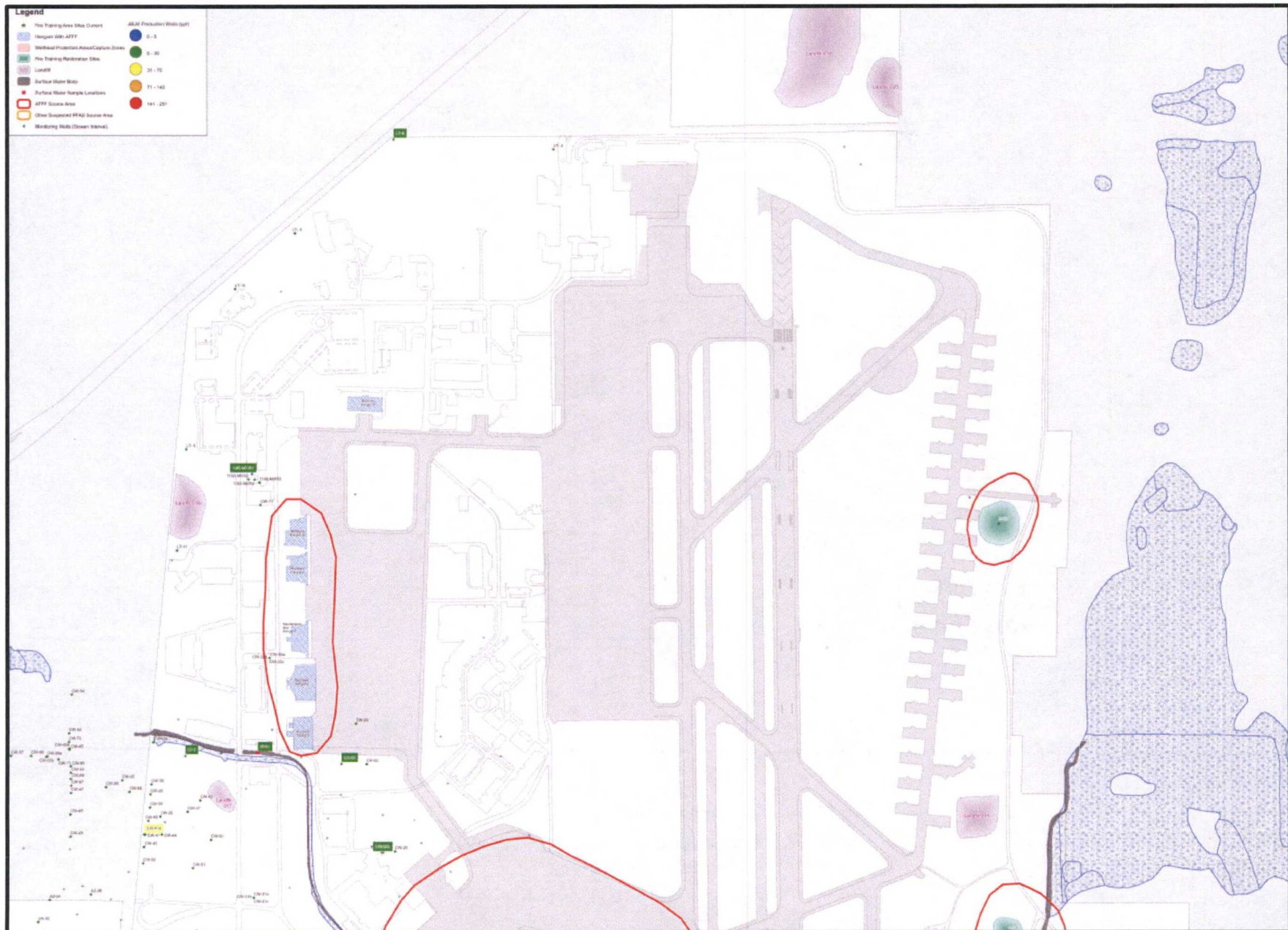
The logo for Joint Base Lewis-McChord is an oval emblem. It features a soldier in full combat gear, including a helmet and a backpack, kneeling on the left side. In the background, there are snow-capped mountains and a green military aircraft flying across the sky. The text "JOINT BASE LEWIS-McCHORD" is arched across the top, and "SERVICE MEMBERS DEFENDING AMERICA" is arched across the bottom.





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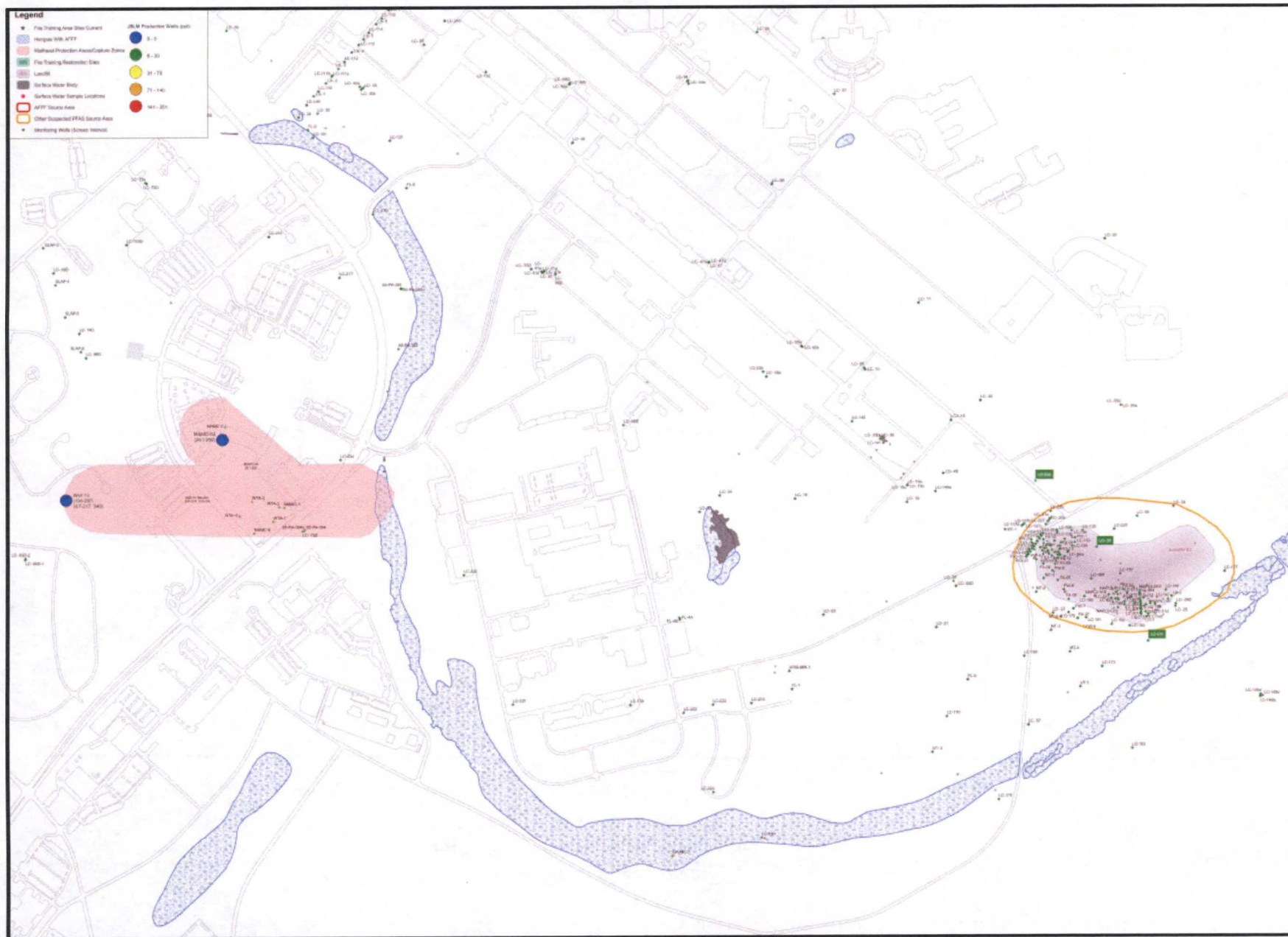
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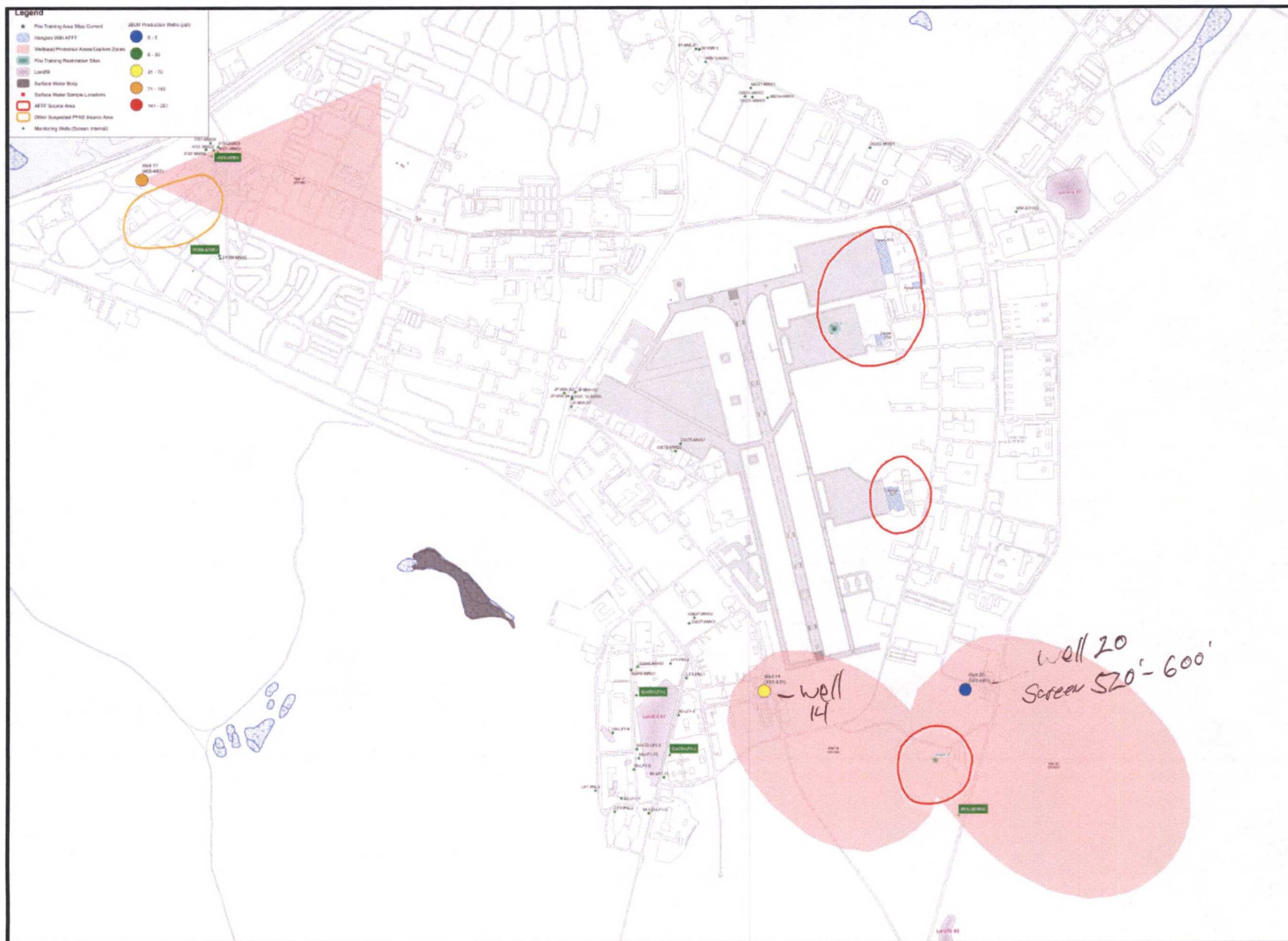
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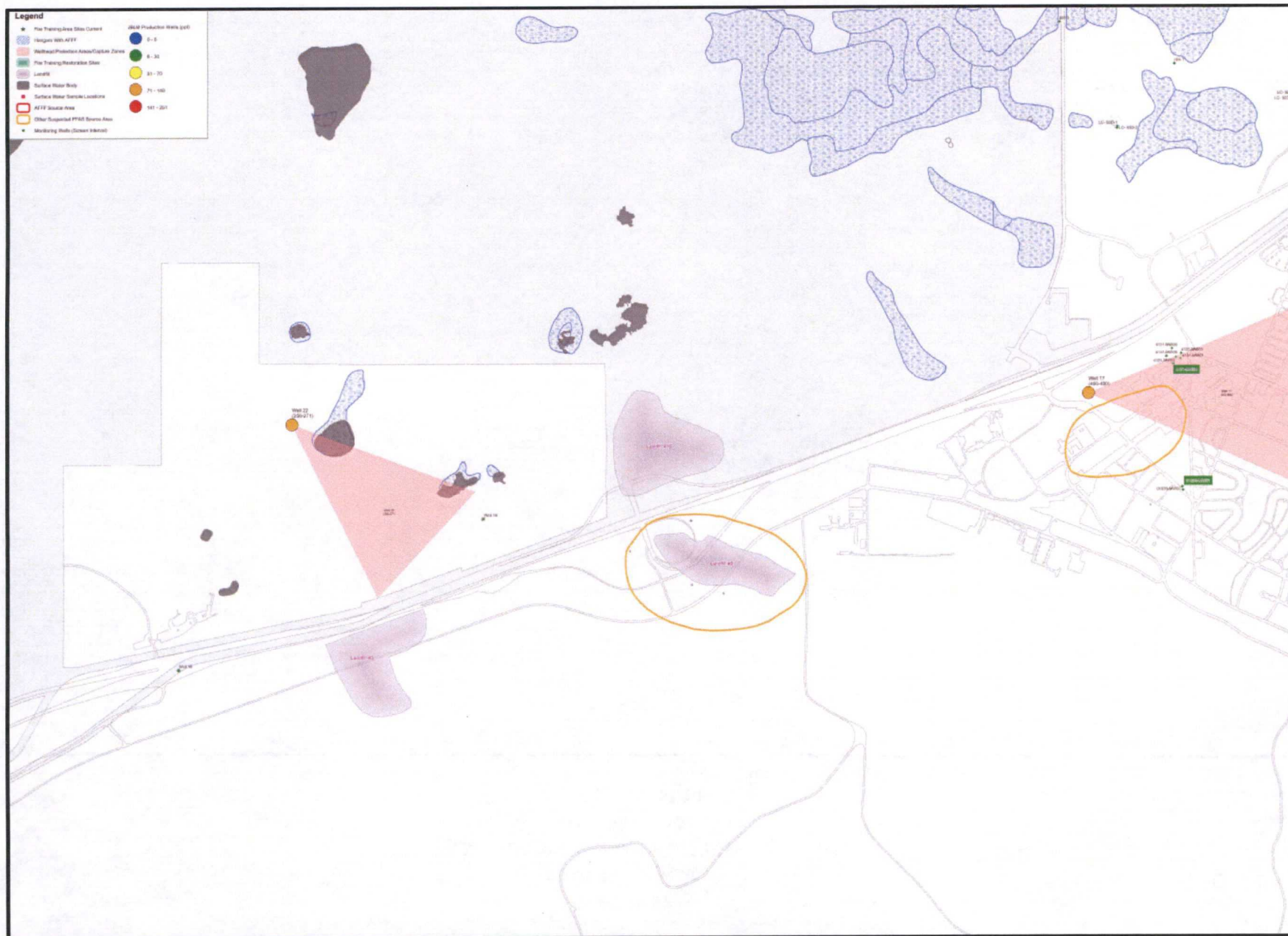
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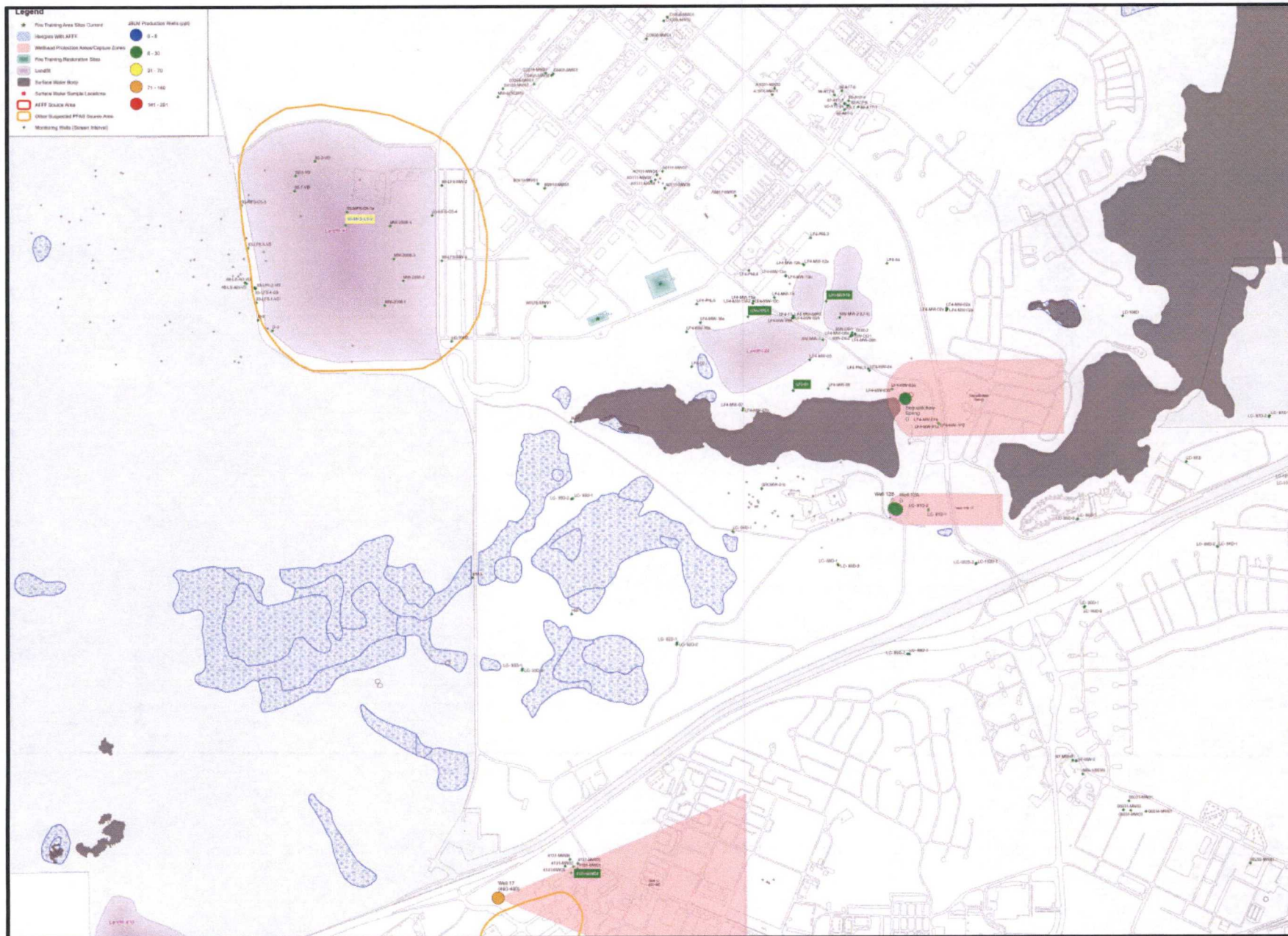
The logo for Joint Base Lewis-McChord is a circular emblem. It features a soldier in full combat gear, including a helmet and a backpack, kneeling on the left side. In the background, there is a large, snow-capped mountain range. To the right of the mountain, a military aircraft is shown in flight. The text "JOINT BASE LEWIS-McCHORD" is written in a semi-circle at the top, and "SERVICE MEMBERS DEFENDING AMERICA" is written in a semi-circle at the bottom. The entire emblem is enclosed within a red and white border.





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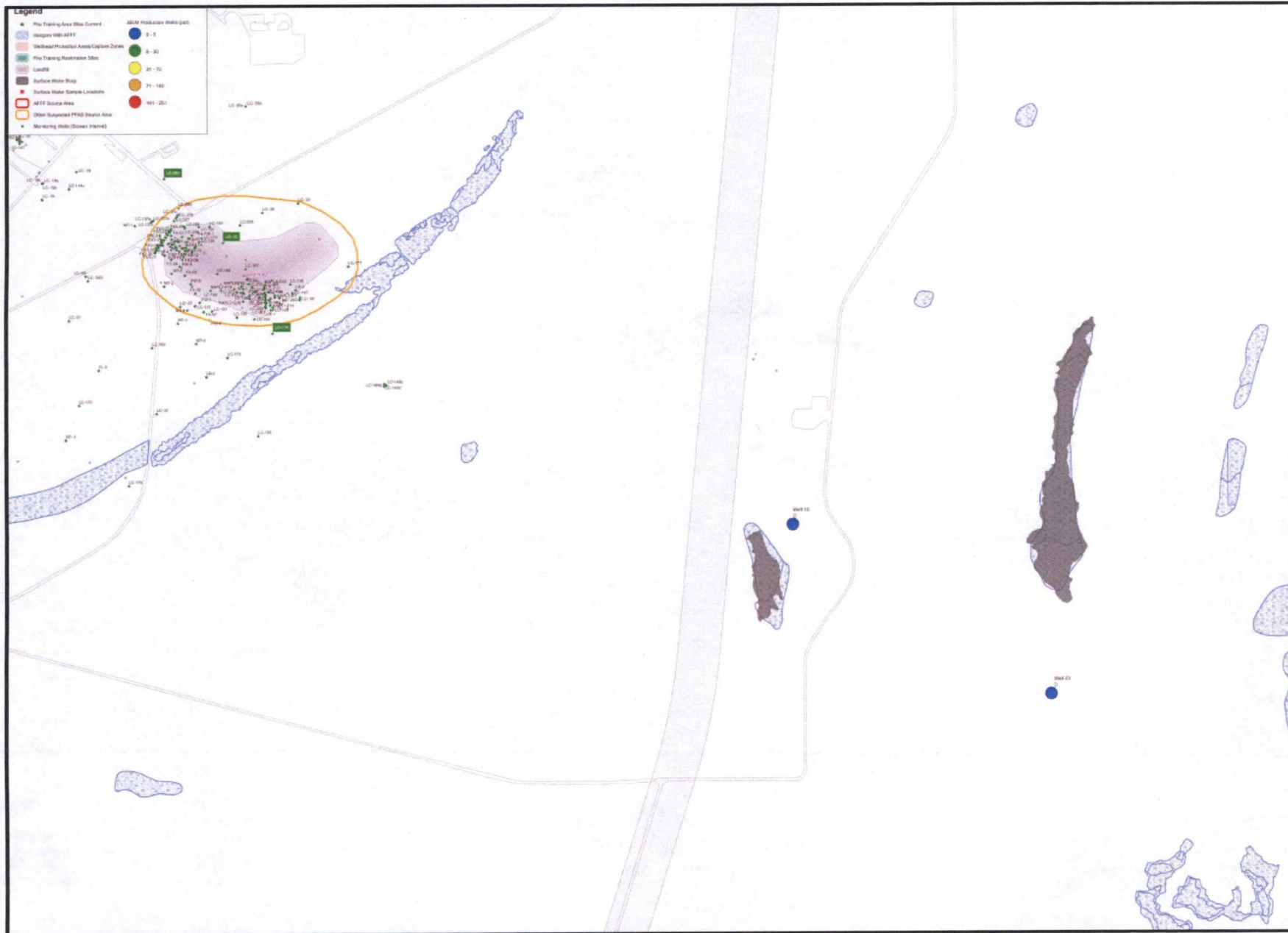
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7.0 Next Steps

1. Collect and analyze samples from well driller supply well to ensure it is PFAS free or locate an alternate source
2. Complete the draft QAPP
3. Conduct TPP #3 for comment resolution (if appropriate)
4. Prepare for the field work
5. Conduct Phase 1 sampling

8.0 Current Schedule

Mid-December 2017 to end of February 2018 - PA research and field visits

Early February – TPP #2 to finalize Phase I existing well selection for sampling

Early March 2018 - Draft QAPP for project team review delivered after TPP #2

April 2018 - TPP #3 (if needed) QAPP Comment Resolution and QAPP Finalization

June 2018 – Phase I sampling

July 2018 – TPP #4, review tabular summary of Phase I data, select additional wells installation locations

August 2018 – Additional well installation

October 2018 – Draft SI Report